EPA/ROD/R04-92/107
1992

EPA Superfund
Record of Decision:

MARINE CORPS LOGISTICS BASE
EPA ID: GA7170023694
OU 03
ALBANY, GA
08/14/1992

U. S. NAVY/ MARINE CORPS INSTALLATION RESTORATION PROGRAM

SUPERFUND
RECORD OF DECISION

MARINE CORPS LOGISTICS BASE
ALBANY, GEORGIA

OPERABLE UNIT THREE

AUGUST 1992

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DECLARATION FOR THE INTERIM ACTION
RECORD OF DECISION

SITE NAME AND ADDRESS

Marine Corps Logistics Base
Operable Unit Three
Albany, Georgia 31704

STATEMENT OF PURPOSE

This Decision Document presents the selected remedial action for Operable Unit Three of the Marine Corps Logistics Base, developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), and to the extent practicable, the National Contingency Plan (NCP). This decision is based on the Administrative Record which is on file in the Dougherty County Public Library, and the Environmental Branch Office, Facilities and Service Division, Building 5501, MCLB Albany, Georgia 31704.

This interim remedial action is taken to protect human health and the environment from any threat, while final remedial solutions are being developed.

Both USEPA and the State of Georgia concur on the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from Operable Unit Three, if not addressed by implementing the response action selected in the Interim Record of Decision (ROD), may present a current or potential threat to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

There are 24 Potential Sources of Contamination (PSCs) at MCLB Albany. Of these, 12 PSCs were identified for the Remedial Investigation/Feasibility Study (RI/FS) Process and were divided into 5 Operable Units. Operable Unit Three consists of PSC 16 and PSC 17. PSC 16 addresses a former transformer location. PSC 17 addresses a chrome plating waste spill area. The scope of this Interim ROD is limited to Operable Unit Three.

The selected remedy for Operable Unit Three, PSC 16, includes the following:

- Installation of a multilayer cap over the surface area of the site.
- Implementation of land use restrictions on future activities within the source area.

- Excavation and off-base disposal of sediment in the bottom of the catch basin adjacent to PSC 16.

- Groundwater monitoring.

The selected remedy for Operable Unit Three, PSC 17, includes the following:

- Excavation and stabilization of the contaminated soil, with off-base disposal at a permitted landfill.

STATUTORY DETERMINATIONS

The selected interim remedial actions are protective of human health and the environment, comply with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and are cost-effective. The interim remedial actions utilize permanent solutions and alternative treatment technologies to the maximum extent practicable for this site. Soils from PSC 17 will be treated and disposed of off-base. However, soils at PSC 16 will remain on-site. Because this interim remedial action does not constitute the Final Remedy for the Site, the statutory preference for remedies as a principle element will be addressed by the final response action.

Because this remedy will result in hazardous substances remaining on-site above health based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

DECISION SUMMARY

1.0 SITE NAME, LOCATION AND DESCRIPTION

MCLB Albany is an active facility occupying approximately 3,200 acres 5 miles east-southeast of the City of Albany, Georgia (Figure 1). Land bordering MCLB Albany to the south, east and northeast is primarily agricultural or recreational open space. The land to the northwest and west of the Base is dominated by residential and commercial areas of eastern Albany.

Both locations of Operable Unit Three are located in the west-central portion of the Base. PSC 16 (Figure 2A) is the former location of an electrical transformer and supporting concrete pad, approximately 12 feet by 16 feet in size, adjacent to Building 7100. PSC 17 (Figure 2B) is located adjacent to the Central Repair Building (Bldg 2200) between a drum staging area and the Weapons Test Firing Building (Bldg 2226).

MCLB Albany currently serves as a military logistics center.

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

MCLB Albany currently serves as a military logistics center, controlling the acquisition, storage, maintenance, and distribution of combat and support material for the Marine Corps. In addition, the Base is used for training of military personnel and other tasks and functions as directed by the Commandant of the Marine Corps.

MCLB Albany has generated various types of solid and liquid wastes over the years, including refuse and hazardous wastes. The hazardous wastes include electroplating wastes containing heavy metals; organic solvents from stripping and cleaning operations; and waste fuel and oil.

Commencing in 1985, three investigations were performed to assess and characterize PSCs identified at MCLB Albany. These investigations included the 1985 Initial Assessment Study (IAS), the 1987 Confirmation Study, and the 1989 RCRA Facility Investigation (RFI). As a result of these investigations, MCLB Albany was placed in Group 7 (Hazard Ranking System score of 45.91 to 43.75) of the National Priority List (NPL) for Uncontrolled Hazardous Waste Sites. MCLB Albany was placed on the NPL in December 1989.

In July of 1991, the Department of the Navy, representing MCLB Albany, entered into a Federal Facilities Agreement with the Georgia Environmental Protection Division (GEPD) and the EPA to establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at the site in accordance with CERCLA, RCRA, the NCP, Superfund guidance and policy, and the Georgia Hazardous Waste Management Act (GHWMA).

The following reports describe the results of investigations at Operable Unit Three to date:

SOUTHNAVFACENGCOM, Multiple Use Natural Resources Management Plan for Marine Corps Supply Center, Albany, Georgia, 1974.

SOUTHNAVFACENGCOM, Master Plan, MCLB Atlantic, Albany, Georgia, 1978.

Crawford, V.I., Environmental Engineering Survey, Marine Corps Logistics Base (MCLB), Albany, Ga.: Naval Facilities Engineering Command (NAVFACENGCOM), Southern Division, 1979.

Envirodyne Engineers, Inc., Initial Assessment Study -- Marine Corps Logistics Base, Albany, Georgia, 1985.

McClelland Engineers, Final Report, Confirmation Study Verification Step, Marine Corps Logistics Base, Albany, Georgia: Prepared for Southern Division, Naval Facilities Engineering Command, 1987.

Applied Engineering and Science, Inc., RCRA Facility Investigation Phase One Confirmation Study, MCLB Albany, Georgia, 1989.

USEPA, Site Investigation Report for Operable Unit Three, MCLB Albany, Georgia, 1991.

ABB-ES, Initial Evaluation of the Remedial Investigation Data for PSC 16 and PSC 17, Marine Corps Logistics Base, Albany, Georgia: ABB Environmental Services, Inc., Tallahassee, Florida, 1992.

Remedial Investigation/Feasibility Study (RI/FS) Report, Operable Unit Three, MCLB Albany, Georgia, 1992.

Proposed Plans for Operable Unit Three, MCLB Albany, Georgia, 1992.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Remedial Investigation/Feasibility Study (RI/FS) Report and the Proposed Plans for Operable Unit Three were released to the public on 13 July 1992. These documents were made available to the public in the Information Repository located at the Dougherty County Public Library, and in the Administrative Record located at the Public Affairs Office, Bldg 3500, Marine Corps Logistics Base, Albany, Georgia 31704-5000. The public comment period for the Proposed Plans was July 13 - August 13, 1992. The public notice of the RI/FS Report and Proposed Plans was published in the Albany Herald on July 12, 1992, and in the Atlanta Journal and Constitution on July 16, 1992. A public meeting was held on July 21, 1992 in Albany. At this meeting, representatives from USEPA, GEPD, SOUTHDIV, and MCLB Albany were available to answer questions about Operable Unit Three and the remedial alternatives under consideration. No written or verbal comments were received at the public meeting or during the public comment period. However, a Responsiveness Summary is included as part of the Interim Record of Decision.

The Proposed Plans identified the preferred remedy for PSC 16 as Alternative 3. Alternative 3 is described in the Feasibility Study (FS), Operable Unit Three as follows: construction of a multilayer cap, reinstallation and maintenance of fencing and security, land use restrictions, installation of monitoring wells, and monitoring of groundwater quality. The preferred remedy identified for PSC 17 is Alternative 4B. Alternative 4B is described in the FS, Operable Unit Three as follows: excavation and transportation of contaminated soil to a permitted facility, stabilization, and disposal at a landfill. Because no written or verbal comments were received, USEPA, GEPD, SOUTHDIV, and MCLB determined that no significant changes to the Proposed Plans preferred remedies were necessary.

4.0 SCOPE AND ROLE OF OPERABLE UNIT THREE

The overall strategy for remediation of the MCLB Albany NPL site is currently divided into five operable units. The remedial actions selected in this Interim ROD apply to Operable Unit Three. Further investigations continue or are planned for the remaining operable units.

Operable Unit Three is comprised of two PSCs: PSC 16, located adjacent to Building 7100, and PSC 17, located adjacent to the Central Repair Division (Bldg 2200). Both PSC's are located in the west-central portion of the Base. The proposed interim remedial actions are limited to the surface and subsurface soils at PSC 16 and PSC 17. Groundwater contamination will be investigated as media of potential contamination concurrently with other PSC's under a separate

operable unit.

The overall strategies of the selected remedies for Operable Unit Three are:

- Control the release of hazardous substances.
- Minimize the potential direct exposure to hazardous materials.
- Control the potential for releases of hazardous substances to the groundwater near the two PSC's.

These strategies will be achieved by the covering of PSC 16 with a multilayer cap, and the excavation, stabilization and off-base disposal of hazardous soils from PSC 17. The interim remedial actions selected in this Interim ROD are intended to be final actions for the soils at these PSC's.
These interim remedial actions will be consistent with any planned future actions, to the extent possible.

5.0 SUMMARY OF SITE CHARACTERISTICS

5.1 GEOLOGY

MCLB Albany is located in the Dougherty Plain district, which is part of the Coastal Plain physiographic province. The Albany regional geology is characterized by layers of sand, clay, sandstone, dolomite, and limestone that dip gently and progressively thicken to the southeast. These sediments extend to a depth of at least 5,000 feet below land surface (bls).

The sediments of interest at MCLB Albany (sediments that affect the hydrology of the Upper Floridan aquifer) are of late middle Eocene age and younger including, in descending order, the undifferentiated overburden of Quaternary age, the Suwannee Limestone, the Ocala Limestone, the Clinchfield Sand, and the Lisbon Formation. The location and geological section of the Albany area are presented in Figure 3.

5.2 HYDROGEOLOGY

There are two principal hydrostratigraphic units of interest at the MCLB: the undifferentiated Quaternary overburden deposits and the underlying Upper Floridan aquifer (Ocala Limestone).

Within the overburden, most sand or clay layers are discontinuous; however, a thick clay zone apparently persists in the lower half of the overburden throughout the MCLB Albany area. This clay zone, ranging in thickness from 10 to 29 feet, serves to cause intermittent perched groundwater conditions in the overburden, decrease the amount of groundwater recharge to the Upper Floridan aquifer from infiltration of precipitation, and control the rate of infiltration of chemical contaminants. Groundwater is normally found within the overburden and was measured at depths ranging from 15 to 95 feet bls in MCLB Albany monitoring wells in May 1991.

The Upper Floridan aquifer, consisting primarily of the Ocala Limestone, ranges from about 200 to 275 feet thick in the area of the MCLB. The aquifer is confined above by the clayey overburden and below by a low-permeability layer in the Lisbon Formation. Large quantities of water are stored and transmitted within the aquifer and the Upper Floridan has recently been studied and judged to be favorable for large-scale water withdrawal. The aquifer is regionally unconfined, semi-confined, or confined by the overlying soils, and the rate of recharge depends primarily on the vertical hydraulic conductivity of the overburden. The rate of mean annual recharge to the aquifer is reported to be on the order of 6 to 14 inches per year (in/year). The Upper Floridan aquifer is divided into an upper zone (with greater density) and a lower zone (with greater permeability due to solution-enlarged joints, bedding planes, and fractures).

These solution cavities can produce transmissivity values as high as 15,000 square feet per day (ft[2]/day).

Published studies of the Upper Floridan aquifer indicate that the potentiometric surface slopes westerly to southwesterly in the MCLB Albany area (Figure 4). The aquifer discharges water to the Flint River and local streams where the streams have incised into the aquifer or where the potentiometric surface exceeds the surface water elevation. The relationship can be reversed locally during dry periods when the potentiometric surface drops and streams discharge to the aquifer.

5.3 ECOLOGY

The majority of forested land in the vicinity of the Base is vegetated with longleaf pine flatwoods, the most extensive floral community in the southern coastal plain. Also known as pine flatwoods, pine flats, low pinelands, or pine barrens, this low flat woodland habitat occurs transitionally between upslope xeric sandhill communities and downslope shrub-dominated evergreen wetlands. Pine flatwoods occur throughout Florida, and northward into Georgia, South Carolina, and North Carolina.

The high level of herbaceous productivity in the pine flatwood habitat frequently supports a rich invertebrate faunal community. This invertebrate community often supports a number of insectivorous vertebrates, including 20 to 30 species of reptiles and amphibians. A number of small mammals inhabit the flatwood community although no mammal is exclusive to this habitat.

Depending upon the vegetative association, pine flatwoods provide habitat for a diverse array of avifauna, including insectivorous gleaners of pine needles and bark, flycatchers, a seed eating assemblage, and nocturnal and diurnal aerial predators. The red-cockaded woodpecker (Picoides borealis), a federally endangered species, occurs almost exclusively within this pine flatwoods habitat; however, there are no known records for this species at MCLB Albany.

The presence of two rare and endangered species has been confirmed at this facility. The American alligator (Alligator mississippiensis), has been documented in wetland habitats at the Base; this semi-aquatic species is ubiquitous throughout the southeast. Bachman's Sparrow (Aimophila aestivalis), a State and federally endangered species, is also a possible resident of the dry open pine forests at MCLB Albany; this large, secretive sparrow is a year-round resident of southern Georgia.

5.4 NATURE AND EXTENT OF CONTAMINANTS

The nature, extent, and concentration of hazardous substance contamination at PSC 16 was studied during field investigations performed in 1990 and 1991. Field studies at PSC 17 were conducted in 1990, 1991, and 1992. The following summarizes the major observations from the previous investigations.

5.4.1 Contaminants Potential of Concern

Hazardous substances detected in the soil at PSC 16 and PSC 17 are listed in Tables 1A and 1B. To provide a focus for remedial action objectives, contaminants potential of concern (CPC) were identified in the Baseline Risk Assessment of the RI report. The following factors were considered in the selection of CPC:

- Concentration and frequency of occurrence
- Distribution in the soil at the site
- Regulatory criteria and toxicity

A summary of the number of samples with detections and the concentrations found are presented in Tables 2 and 3 for each of the CPC at PSC 16 and PSC 17. Of the CPC identified in the RI, Aroclor-1260 (PCB) at PSC 16 and chromium (total) at PSC 17 were the most widely distributed and typically at higher concentrations than other constituents. They are considered to be representative of the distribution of constituents at each location.

5.4.2 Contaminant Sources

PSC 16 is the former location of an electrical transformer and supporting concrete pad. During an inspection conducted as part of a polychlorinated biphenyl (PCB) transformer change-out program, evidence of leakage of transformer oil was observed on the concrete pad beneath the transformer. As a result, contamination is present in the subsurface soil.

At PSC 17, a spill of chrome plating waste occurred at a spot approximately 40 feet northeast of Building 2226 sometime prior to October 1989. The contaminants subsequently migrated downhill, and now cover an area of approximately 425 square feet. As a result, contamination is present in both surface and subsurface soil.

6.0 SUMMARY OF SITE RISKS

The actual or threatened releases of hazardous substances from Operable Unit Three may present a current or potential threat to public health, welfare, or the environment.

6.1 PSC 16

Risk assessments were conducted on PSC 16 to quantify public health and ecological risks associated with exposure to soils. Only subsurface soils were evaluated in the risk assessment, as surface soils (to a depth of 44 inches) were removed in a prior action and replaced with clean soil. The CPC's identified at PSC 16 are listed in Table 1A. The only potential exposure for the PSC could occur at some future date as a result of construction for either military or residential use. Construction workers could be exposed to subsurface soils for a limited time period by incidental ingestion of, and/or dermal contact with soils. The inhalation pathway was not evaluated because the CPC's are not volatile, and significant wind erosion of particles would not be anticipated from an excavation.

A total carcinogenic risk estimated for current and potential future nonresidential and residential use of the PSC is three in 100,000 (3x10[-3]) and a noncarcinogenic hazard index of 0.7 was estimated for these exposures. The carcinogenic estimated risk is within USEPA's target risk range of one in 10,000 (10[-4]) to one in one million (10[-6]). The substance which contributes most significantly to risk is a PCB, Aroclor 1260. The Hazard index (HI) is less (more protective) than the target HI of 1 identified by USEPA. The noncarcinogenic HI represents an overestimate of actual risk. This is because the chemicals which dominate the HI, two tetrachlorobenzene isomers (1,2,4,5-tetrachlorobenzene) with relatively high toxicity were used in the risk assessment to represent the other isomers. Thus, the actual hazard is probably lower.

The developed nature and lack of any open space at PSC 16 preclude the use of this PSC by any terrestrial ecological receptors. In addition, the top 44 inches of soil were excavated and replaced with clean soil, thus ecological receptors are not at risk of exposure to chemicals detected at PSC 16.

6.2 PSC 17

Risk assessments were conducted on PSC 17 to quantify public health and environmental risks associated with exposure to soils. Both surface and subsurface soils were evaluated. The CPC's identified at PSC 17 are listed in Table 1B. Both current and potential future uses of the PSC were considered in the exposure assessment. Current use of the PSC is limited to Base workers that could work near or walk by the area. Exposure pathways identified for this use were incidental ingestion and direct contact with surface soils and inhalation of wind-eroded particles. There is no current exposure to subsurface soils. In the future, use of the PSC could continue as it is presently. Alternately, the PSC could be developed for residential uses.

Exposures associated with future residential use of the PSC include exposure of both children and adults to surface soils via incidental ingestion and direct contact with soils, and inhalation of wind eroded soil particles. Workers could also be exposed to subsurface soils during construction at the PSC. Exposure pathways would include incidental ingestion and direct contact with soils for a limited period of time.

Figures 5 and 6 present carcinogenic risks and noncarcinogenic hazard indices, respectively, associated with exposures to surface soils. A total carcinogenic risk estimated for current and potential future nonresidential use of the PSC is one in ten million (1x10[-7]). This is less (more protective) than the acceptable risk range of 10[-4] to 10[-6] specified by USEPA. The noncarcinogenic HI for this use is 0.1. This is also more protective than the target HI of 1 identified by USEPA. For future residential land use, a total carcinogenic risk and noncancer hazard index associated with exposure to surface soils of five in one million (5x10[-6]) and 5, respectively, is estimated. The estimate of carcinogenic risk is within the acceptable risk range specified by USEPA. The noncancer HI is greater than the target HI of 1 identified by USEPA. Exposure of construction workers to subsurface soils is estimated to result in a total hazard index of 0.04. No carcinogenic CPC's were identified in subsurface soils. The hazard index is more protective than the target HI of 1 identified by USEPA.

An ecological risk assessment was conducted to determine the possible adverse effects associated with surface soil exposure by terrestrial wildlife. Terrestrial organisms (i.e., birds, mammals, reptiles, and terrestrial invertebrates) at PSC 17 may be exposed to chemicals in surface soil via incidental ingestion of surface soils, ingestion of prey items that have bioaccumulated chemicals in their tissues, and dermal uptake. A food web model (i.e., a model evaluating which species eat which species, and how much each consumes) was developed to estimate the potential dietary exposure levels of contaminants for several potential receptor species representing various trophic levels within the ecological community at MCLB Albany.

The average concentrations of trivalent chrome and hexavalent chrome used in the food web model are greater than any concentrations detected in the spill area except for the point of spillage. This results in the model representing a very conservative scenario for the PSC.

The results of the ecological risk assessment indicate that possible adverse effects are associated with surface soil exposure by terrestrial wildlife. These possible effects consist of long-term effects on survival and reproduction, which may have population-level consequences. The overall type and distribution of contaminants in surface soils strongly suggests effects from lead and chromium. CPC's are listed in Table 1B.

Five indicator species were selected to represent exposure to terrestrial organisms surface soil and food sources:

- short-tailed shrew
- woodcock
- garter snake
- red fox
- red-tailed hawk

Estimated HI's for all modeled receptor species exceeded 10, suggesting that environmental contamination associated with acute exposures at PSC 17 could potentially impact ecological receptors that use this area of the Base.

Adverse chronic effects are indicated only for small mammals (i.e., short-tailed shrew). The risk analysis suggests that other receptors (i.e., reptiles, birds, and predatory mammals) would be much less likely to be adversely affected due to chronic exposures to any CPC's at the PSC. Possible adverse chronic effects are predicted for small birds and reptiles. The surface soil contaminants, lead and chromium, contribute most significantly to the overall hazards predicted at PSC 17.

7.0 DESCRIPTION OF ALTERNATIVES

The following is a description of the alternatives evaluated in the FS for Operable Unit Three

7.1 Alternative 1 -- No Action

Consideration of a no-action alternative is required by the NCP. Under Alternative 1, no response actions would be implemented.

Estimated Capital Costs: $0
Estimated First-Year Operations and Maintenance (O&M): $0
Estimated Present Worth Costs: $0
Estimated Implementation Time-Frame: 0 Months

7.2 Alternative 2 -- Limited Action

The limited action alternative incorporates the maintenance of the chain link fencing/security measures currently implemented at PSC 16 and PSC 17, groundwater quality monitoring, and the institution of future land use property restrictions. The contaminated soils will remain in-place and untreated. Costs are associated with the installation of monitoring wells, and the collection and laboratory analyses of groundwater samples.

Estimated Capital Costs PSC 16: $28,100
Estimated First-Year O&M PSC 16: $37,000
Estimated Present Worth Costs PSC 16: $188,300
Estimated Implementation Time-Frame PSC 16: 1 Month
Estimated Capital Costs PSC 17: $9,000
Estimated First-Year O&M PSC 17: $21,000
Estimated Present Worth Costs PSC 17: $99,900
Estimated Implementation Time-Frame PSC 17: 1 Month

7.3 Alternative 3 -- Multilayer Cap

Alternative 3 will incorporate the construction of an impermeable clay liner and a flexible membrane liner beneath the surface of the contaminant areas. Reinstallation and maintenance of security and fencing and land use restrictions will be implemented and groundwater monitoring wells will be installed to monitor the groundwater quality. The surficial capping of the PSCs will reduce the infiltration of surface water and the potential migration of the contaminants. The surface layer will consist of bituminous concrete at PSC 16, and loam and seed at PSC 17.

Estimated Capital Costs PSC 16: $64,700
Estimated First-Year O&M PSC 16: $41,500
Estimated Present Worth Costs PSC 16: $242,200
Estimated Implementation Time-Frame PSC 16: 2 Months
Estimated Capital Costs PSC 17: $80,700
Estimated First-Year O&M PSC 17: $25,200
Estimated Present Worth Costs PSC 17: $190,000
Estimated Implementation Time-Frame PSC 17: 2 Months

7.4 Alternative 4A -- Excavation and Incineration

Alternative 4A involves the excavation of the contaminated soils at PSC 16 and the transportation of these soils to an off-base incinerator for treatment and disposal of the residual ash. The incineration of the soils will potentially destroy up to 99.9% of the contaminants.

Estimated Capital Costs PSC 16: $327,800
Estimated First-Year O&M PSC 16: $0
Estimated Present Worth Costs PSC 16: $327,800
Estimated Implementation Time-Frame PSC 16: 2 Months

7.5 Alternative 4B -- Excavation and Stabilization

Alternative 4B incorporates the excavation and transportation of the contaminated soils from PSC 17 to a permitted facility for stabilization and disposal at a landfill. Stabilization of the soils will reduce the solubility and mobility of the contaminants, thereby reducing the potential migration of the contaminants.

Estimated Capital Costs PSC 17: $475,000
Estimated First-Year O&M PSC 17: $0
Estimated Present Worth Costs PSC 17: $475,000
Estimated Implementation Time-Frame PSC 17: 3 Months

7.6 Alternative 5A -- Excavation and Disposal at Landfill

Alternative 5A requires the excavation of the contaminated soils from PSC 16 and their disposal at an off-base permitted landfill.

Estimated Capital Costs PSC 16: $198,200
Estimated First-Year O&M PSC 16: $0
Estimated Present Worth Costs PSC 16: $198,200
Estimated Implementation Time-Frame PSC 16: 2 Months

7.7 Alternative 5B -- Excavation and Soil Washing

Alternative 5B combines the excavation of the soils from PSC 17, the washing of the contaminated soils and the backfill of the treated soils into the excavation area. A small quantity of residual wastes from the soil washing process would be transported and disposed of off-base at a permitted landfill. Washing the soils with a liquid medium will strip the contaminants from the soils into a concentrated residual process waste.

Estimated Capital Costs PSC 17: $606,100
Estimated First-Year O&M PSC 17: $0
Estimated Present Worth Costs PSC 17: $606,100
Estimated Implementation Time-Frame PSC 17: 4 Months

8.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

8.1 PSC 16

8.1.1 Overall Protection of Human Health and the Environment

The human health risk assessment determined that the potential exposure to the contaminants in the subsurface soils at PSC 16 is limited to two pathways. These include dermal contact and incidental ingestion by construction workers, for potential future land use. The ecological risk assessment determined that no exposure pathways currently exist at PSC 16 for ecological receptors, due to the absence of surface soil contamination.

While the human health risk assessment identified risks which are within or less than the USEPA's target risk, it was determined that remediation of the PSC would be a prudent course of action. Therefore, the overall protection of human health was evaluated for all five of the remedial alternatives applicable for PSC 16. Alternative 1 and 2 would provide little or no protection, due to the limited actions taken to eliminate the potential exposure pathways. Alternative 3 would protect human health by eliminating the potential ingestion and dermal contact with the identified subsurface contaminants. PCBs tend to be immobile, however, monitoring of the groundwater would further ensure the protection of the public. Alternatives 4A and 5A would provide the long-term protection to the public by the excavation and off-base treatment/disposal of the soils. However, potential exposures to the construction workers and public would be encountered during the excavation of the contaminated soils.

8.1.2 Compliance with ARARs

Alternatives 1 and 2 would not comply with the chemical-specific ARARs because no actions would be implemented to meet the RCRA storage of hazardous waste requirements. Alternatives 3 and 5A would meet the federal and state ARARs, but would not meet the health-based TBC's because these alternatives only contain the contaminants and do not treat them. The containment of the contaminants will be accomplished by the capping of the area or the excavation and off-base disposal of the soils at a permitted facility. Remedial alternative 4A can comply with all of the chemical-, location-, and action-specific ARARs.

8.1.3 Long-term Effectiveness and Permanence

Alternative 1 does not provide any long-term protection against the dermal contact and ingestion of the contaminated soils. Alternative 2 provides a minimum degree of long-term protection against the contaminants. With proper maintenance, reinstallation of fencing, implementation of the land use restrictions and the monitoring of the groundwater quality, Alternative 3 would provide the necessary long-term protection required for human health. Remedial alternatives 4A

and 5A would both provide long-term protection and permanence for the public. Alternative 4A would excavate and treat the contaminated soils to concentrations below risk-based criteria. Alternative 5A would only relocate the contaminated soils from PSC 16 to a secure landfill, but would protect the public for potential future uses of the area.

8.1.4 Reduction of Toxicity, Mobility, and Volume

Remedial alternatives 1 and 2 would not address any of these concerns. Alternative 3 would only eliminate the potential mobility of the contaminants by the capping of the exposed surface area and not the toxicity or volume. Alternative 4A would reduce the mobility and volume of the contaminants through the thermal treatment of the soils. The residual ash may require further treatment prior to its disposal to ensure the reduction of the toxicity and mobility in the permitted landfill. Alternative 5A would only reduce the mobility of the contaminants through the relocation of the soils to a secure landfill.

8.1.5 Short-term Effectiveness

Short-term construction effects related to dust and noise generation are expected for all alternatives except Alternatives 1 and 2. Construction workers and the general public may be at risk during the excavation of the contaminated soils (dermal contact and ingestion), but proper engineering controls and personal protection equipment would be implemented to reduce the potential temporary exposure pathways.

Alternative 3 would require approximately 2 months to install the multilayer cap over the surficial area of PSC 16. Alternatives 4A and 5A are also estimated to by completed within a 2 month period (each). The excavation of the soils would include the confirmatory soil sampling of the exposed soils to ensure that the contaminants exceeding the target clean-up concentrations have been removed and treated/disposed. The excavation of the soils from PSC 16 would cause a temporary concern related to the structural stability of Building 7100 by exposing the foundation and excavating soils from beneath the structure. Additional concern is related to the backfilling of the excavated area beneath the building to ensure proper compaction to continue to support the building structure.

8.1.6 Implementability

Alternative 2 would require a minimal effort to implement the existing fencing and security measures and land use restriction. The installation and sampling of the groundwater monitoring wells could also be readily completed at the PSC location for both Alternatives 2 and 3. The installation of a multilayer cap over the surficial area of PSC 16 under Alternative 3 is a viable remedial option. Because of the concerns related to the excavation of the soils and the proper backfill to support the building foundation, an impermeable cap would minimize any potential impact of the building. In addition, the surficial cover surrounding PSC 16 would readily support the installation of a cap having a paved cover abutting the existing parking lot and concrete pad storage area. Alternatives 4A and 5A both require the excavation of the soils from adjacent to and beneath the building foundation. Beyond this short-term concern, both the incineration and direct land burial of the soils are proven and have available permitted facilities within a radius of approximately 1700 miles and 200 miles, respectively.

8.1.7 Costs

Costs for Alternatives 3 are estimated to be significantly less than Alternatives 4A and 5A.

8.2 PSC 17

8.2.1. Overall Protection of Human Health and the Environment

The human health risk assessment determined that the potential exposure to the contaminants in the surface soils at PSC 17 consists of three pathways. These include dermal contact and incidental ingestion and dust inhalation by Base workers and residential (future use only) occupants. Only construction workers would be exposed to subsurface soils at some future date of construction occurred at the PSC.

The ecological risk assessment determined that three exposure pathways currently exist at PSC 17 for ecological receptors. These include the incidental ingestion of surface soils, ingestion of prey items that have bioaccumulated the contaminants, and dermal uptake. Based on this risk assessment, several terrestrial receptors could be potentially impacted by the contamination identified at PSC 17.

Alternatives 1 and 2 would provide little or no protection for the public and environment. Alternative 3 would eliminate the exposure pathways for both the existing and future conditions at PSC 17. Alternatives 4B and 5B would protect the public and environment for all current and future conditions through the excavation and treatment of the soils. Alternative 4B would stabilize the contaminants in the soils, while 5B would extract the contaminants through soil washing and permit the backfill of the clean soils in the excavated area.

8.2.2 Compliance with ARARs

Alternatives 1 and 2 would not comply with the chemical-specific ARARs. Alternative 3 and 4B would meet the ARARs, but would not satisfy the health-based federal and state TBC's because the contaminants are only contained. Alternative 5B would meet all of the chemical-, location-, and action-specific ARARs through the treatment of the soils.

8.2.3 Long-term Effectiveness and Permanence

Alternative 1 does not provide any long-term protection against exposure to the contaminants, and Alternative 2 only provides a minimal degree of protection. The installation of a cap over PSC 17 (Alternative 3) would require the continued monitoring of the groundwater quality to ensure long-term effectiveness. Remedial Alternatives 4B and 5B would provide a permanent solution to the exposure scenarios by the excavation and stabilization/treatment of the soils. The backfilled soils would either by clean fill or the treated soils form the soil washing process. Confirmatory soil sampling would also ensure that all of the contaminated soil exceeding the target clean-up concentrations have been excavated and treated.

8.2.4 Reduction of Toxicity, Mobility, or Volume

Remedial Alternatives 1 and 2 would not address any of these criteria. Alternative 3 would reduce the mobility of the contaminants in the soils by reducing the infiltration of the surface water. Alternative 4B would reduce the toxicity and mobility of the onsite contaminants in the soil by excavation and treatment of the contaminated soil. Alternative 5B would address the mobility and volume of the contaminants by the washing of the soils. The contaminants would be concentrated in a process residual requiring further treatment prior to its disposal off-base at a permitted landfill facility.

8.2.5 Short-term Effectiveness

Short-term construction effects related to dust and noise generation are expect for all

alternatives except for Alternatives 1 and 2. Construction workers and Base personnel with access to this restricted area may potentially be at risk during the PSC preparation for the capping of PSC 17, or during the excavation of the soils for Alternatives 3, 4B, and 5B. Alternatives 4B and 5B would require approximately 2 months, 3 months, and 4 months, respectively, to complete the remediation activities.

8.2.6 Implementability

Alternatives 2 and 3 would require the implementation of land use restrictions and installation of monitoring wells around PSC 17. Alternative 3 would also require the installation of an impermeable cap over the area. This can readily be accomplished as the area is relatively flat and void of structures. The construction materials and equipment are readily available for this type of operation. Alternatives 4B and 5B would require the excavation of the soils by general construction equipment. Remedial Alternative 5B would also require the temporary installation of a soil washing unit, and electrical and water service connections.

8.2.7 Costs

Costs for Alternative 3 are estimated to be significantly less than the other alternatives. However, Alternative 4B will eliminate the current and potential future exposure pathways from PSC 17. Alternative 4B will also not require O & M, as Alternative 3 (scheduled groundwater monitoring).

9.0 SELECTED REMEDY

Based upon consideration of the requirements of CERCLA and the detailed analysis of the alternatives (since no public comments were received), SOUTHDIV in consultation with USEPA, GEPD, and MCLB Albany have determined that the most appropriate remedy for PSC 16 is Alternative 3, and for PSC 17 the most appropriate remedy is Alternative 4B.

The complete remedy for PSC 16, located adjacent to Building 7100, includes:

- Installation of a multilayer cap over the surface area, including a flexible membrane liner, sand drainage layer, gravel layer, and bituminous concrete surface layer.
- Re-installation and maintenance of security fencing.
- Implementation of land use restrictions on future activities within the source area.
- Excavation and off-base disposal of sediment in the bottom of the catch basin adjacent to PSC 16.
- Installation of monitoring wells and monitoring of groundwater quality.

The complete remedy for PSC 17, located adjacent to the Central Repair Division (Bldg 2200), includes:

- Excavation of the contaminated soil.
- Transport off-base to a stabilization facility.
- Stabilization of the contaminated soil.
- Disposal at a permitted landfill.
- Site restoration, including backfilling the area with clean soil and revegetation.

The estimated costs of the selected remedies are presented in Table 4.

9.1 REMEDIATION GOALS

The specific objectives of the selected remedy are to:

1. Control the release of hazardous substances.
2. Minimize the potential direct exposure to hazardous materials.
3. Control the potential for releases of hazardous substance to the groundwater near the two PSCs.
4. Collect data on aquifer and contaminant response to remediation measures.

TABLE 4
SELECTED REMEDY COST ESTIMATE

	PSC 16	PSC 17
Estimated Capital Costs	$64,700	$475,000
Estimated First-Year O&M Costs	$41,500	$0
Estimated Present Worth Costs	$242,200	$475,000
Estimated Implementation Time Frame	2 Months	3 Months

This is an interim action that addresses only a portion of the MCLB installation and does not address any groundwater contamination that may exist. Groundwater contamination will be investigated as media of potential contamination concurrently with other PSCs under a separate operable unit. However, the actions described in this Interim ROD are intended to be final actions for the soil at these PSCs. Although these actions are intended to be final for soils, the remaining contamination at PSC 16 will be defined (by sampling) as part of the remedial actions to comply with the Base permit under the Georgia Hazardous Waste Management Act (GHWMA).

The ultimate level of remediation to be attained will be determined in a final remedial action for these PSCs. This remedial action will be monitored carefully to determine the feasibility of achieving this level with this method and to ensure that hydraulic control of a contaminated plume, if one exists, is maintained. After the period of time necessary, in EPA's judgment, to arrive at a final decision for the PSCs, a final ROD for groundwater, which specifies the ultimate goals, remedy, and anticipated time-frame, will be prepared. Upon completion of an RI/FS (for groundwater), this interim system may be incorporated into the design of each PSC remedy specified in the final action ROD.

10.0 STATUTORY DETERMINATIONS

Under its legal authorities, the EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that when complete, the selected remedial action for this site must comply with applicable or relevant and appropriate environmental standards established under Federal and State environmental laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatments that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as their principal element. The following sections discuss how the selected remedies meet these statutory requirements.

10.1 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedy for PSC 16, multilayer cap with reinstallation and maintenance of the fencing and security, land use restrictions and monitoring wells, will protect human health and environment from potentially adverse exposure risks associated with the current use of the PSC. The multilayer cap will minimize surface water infiltration and, thereby, reduce the potential migration of contaminants in the soils. Additionally, the cap will eliminate the potential exposure route (e.g., ingestion of soils). The maintenance of fencing and security measures and land use restrictions will also support the overall protection of the public and environment by ensuring that the potential current and future use exposures are eliminated through access restrictions. Groundwater monitoring will provide a continuous monitoring mechanism to ensure that the contaminants are not migrating.

The selected remedy for PSC 17, excavation and transportation of contaminated soils to a permitted facility for stabilization and disposal at a permitted landfill, will protect human health and the environment by the stabilization of the contaminants in the soils and final disposal of the stabilized materials at a permitted landfill. The excavation and treatment of the soils will eliminate the potential exposure pathways for both the public (military and residential) and environment. In addition, the present and future use of PSC 17 will not present any adverse health effects to construction workers. However, excavation, transportation, and stabilization of the soils must be controlled to protect the public and environment from fugitive dust emissions.

10.2 COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR's)

The selected remedies for PSC 16 and PSC 17 will comply with ARAR's. The following were identified as ARAR's for Operable Unit Three:

- Clean Air Act (CAA), National Ambient Air Quality Standards (NAAQS's) and National Emissions Standards for Hazardous Air Pollutants (40 CFR 50, 40 CFR 61)
- USEPA Regulations on Approval and Promulgation of Implementation Plans (40 CFR Part 52, Subpart L - Georgia)
- Occupational Health and Safety Act Regulations for air contaminants (29 CFR 1910.1000)
- RCRA General and Location Standards for Permitted Hazardous Waste Facilities (40 CFR 264, Subparts A through F)
- USEPA Rules for Controlling PCB's under the Toxic Substances Control Act (TSCA) (40 CFR 761.125, Subpart D, G and K)
- Endangered Species Act (16 U.S.C. 1531, 50 CFR Parts 81, 225, 402)
- RCRA Facility Location Regulations (40 CFR 264.18)
- RCRA Closure and Post-Closure Requirements (40 CFR 264, Subpart G)
- RCRA Regulations for Generation of Hazardous Waste (40 CFR 262)
- RCRA Transportation Regulations and DOT Standards (40 CFR 263, 49 CFR, Parts 171 through 179)
- RCRA Subtitle D Solid Waste Regulations (40 CFR 241 and 257)
- CAA - NAAQS's for Particulates (40 CFR 50)
- RCRA Standards for Environmental Performance of Miscellaneous Units (40 CFR 264, Subpart X)
- RCRA Regulations on Land Disposal Restrictions (Land Ban) (40 CFR 268)
- RCRA Regulations for Use and Management of Containers (40 CFR, Subpart I)
- RCRA Regulations for Waste Piles (40 CFR 264, Subpart L)
- RCRA Incinerator Standards (40 CFR, Subpart O)
- OSHA - General Industry Standards, Recordkeeping and Reporting, and Standards for Hazardous Waste Site Operations (29 CFR Part 1926, 29 CFR Part 1904, 29 CFR Part 1910)
- USEPA Rules for Controlling PCB's under TSCA (40 CFR 761, Subparts D, G and K)
- Federal Insecticide, Fungicide, and Rodenticide Act (FFRA) and Regulations (40 CFR 165)
- Georgia Air Quality Control Law and Georgia Air Quality Control Rules (Code of Georgia, Title 12, Chapter 9 DNR Chapter 391-3-1)

- Georgia Hazardous Waste Management Act (Code of Georgia, Title 12, Chapter 8, Article 3)

- Georgia Hazardous Waste Management Rules (Rules and Regulation of the State of Georgia, Title 391, Article 3, Chapter 11)

The proposed remedy for PSC 16 will meet the ARAR's. However, because capping is not a treatment technology, health-risk base cleanup goals (TBC's) will not be achieved for the PSC location. Capping designs must be constructed in accordance with RCRA closure requirements. Chemical- and action-specific ARAR's will also have to be met during the construction of the cap, specifically the air quality criteria stipulated by both Federal and State regulations.

The excavation, transportation, and stabilization of the contaminated soils from PSC 17 will require compliance with the chemical-specific ARAR's involving air quality. Engineering controls, personal protection equipment for the workers, and air monitoring will be implemented during the remedial process operations to protect the public and environment. Other Federal RCRA regulations regarding the general and location standards for permitted hazardous waste facilities will be met by the proposed remedy. Location-specific ARAR's applicable to PSC 17 include the RCRA Facility Location regulations and the Fish and Wildlife Coordination Act and Conservation Act of 1980. The proposed remedy will comply with these ARAR's through the implementation of the soil excavation and off-base stabilization and disposal. The action-specific ARAR's include RCRA regulation, air quality, OSHA and insecticide (DDT and DDE) regulations. All of these criteria will be complied with either during, or by the implementation of, the proposed remedy. The proposed remedy will not, however, meet health-based TBC's.

10.3 COST EFFECTIVENESS

The selected remedies for Operable Unit Three have been determined to provide overall effectiveness proportional to their cost. The selected remedy for PSC 16 is protective of public health and the environment and is less expensive than alternatives 4A and 5A. The proposed remedy for PSC 17 is protective of public health and the environment and while more expensive than Alternative 3, will eliminate the current and potential future exposure pathways.

10.4 UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES (OR RESOURCE RECOVERY TECHNOLOGIES) TO THE MAXIMUM EXTENT PRACTICABLE

It has been determined that the selected remedies for Operable Unit Three represent the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner for PSC 16 and PSC 17. Treatment of PSC 16 was found to be impractical due to cost considerations and the possible negative impact on the adjacent building foundation from the required excavation. The selected remedies provide the best balance of tradeoffs in terms of long-term effectiveness and permanence, reduction in toxicity, mobility or volume achieved through treatment, short-term effectiveness, implementability, cost, while also considering the statutory preference for treatment as a principle element and considering state and community acceptance.

With proper maintenance to ensure that the multilayer cap remains intact and continues to minimize infiltration, long-term effectiveness at PSC 16 will be attained. The maintenance of fencing and security measures, and scheduled groundwater sampling will support the long-term monitoring of the remedial alternative's effectiveness. Risks posed by ingestion of contaminated soils will be eliminated by capping. Erosion will be minimized by construction of a paved surface layer. Land use restrictions will further eliminate potential exposure pathways to the public and environment.

There will be no long-term risks associated with the stabilization and disposal of the soils from PSC 17 in a permitted landfill. The design mix for the stabilization of the contaminants in the soils ensures that the potential leachate will not exceed RCRA Land Disposal Regulations requirements (TCLP mg/1). In addition, the actual disposal method of stabilized soils will ensure that the public and environment are protected from exposure to the metals. No long-term management or O&M requirements at MCLB Albany will be associated with this remedial alternative. The contaminated soils will be removed from the Base, treated, and disposed in a permitted landfill.

10.5 PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

At PSC 16 the selected remedy does not employ any type of treatment. However, at PSC 17 the excavated soil will employ a stabilization treatment. Therefore, the statutory preference for remedies that employ treatment as the principal element is satisfied for PSC 17.

10.6 DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes from the proposed plan were made.

RESPONSIVENESS SUMMARY
COMMUNITY RELATIONS RESPONSIVENESS SUMMARY

1.0 OVERVIEW

MCLB Albany along with SOUTHDIV, USEPA, and GEPD held a public meeting on July 21, 1992, at the Dougherty County Chamber of Commerce to discuss the results of the RI/FS Report and Proposed Plans and solicit comments and questions from the public. However, no citizens appeared. Accordingly, no questions or comments were received during the public meeting.

2.0 BACKGROUND ON COMMUNITY INVOLVEMENT

An active community relations program providing information and soliciting input has been conducted by MCLB Albany for Operable Unit Three. Interviews of citizens on Base and in Albany were conducted in the spring of 1990 to identify community concerns. No significant concerns that required focused response were identified. Most comments received were concerning the potential for contamination of water resources. However, those interviewed indicated that they place great trust in MCLB and their efforts to rectify past waste disposal practices. In addition, the Base has formed a Technical Review Committee that includes members representing the city of Albany and Dougherty County. The local media has also been kept informed since MCLB was placed on the NPL. IR Program fact sheets have been prepared and made available at the Public Affairs Office at MCLB Albany. Documents concerning Operable Unit Three can be found in the Information Repository at the Dougherty County Public Library, and the Administrative Record at the MCLB Public Affairs Office.

3.0 SUMMARY OF PUBLIC COMMENT AND AGENCY RESPONSE

3.1 Public Meeting

No comments or questions were received during the Public Meeting held on July 21, 1992.

3.2 Public Comment Period

Comments and questions received during the public comment period that ran from 13 July to 13 August are summarized below.

3.2.1 Technical Comments and Questions

No technical comments and questions were received during the public comment period.

3.2.2 Other Comments and Questions

No other comments and questions were received during the public comment period.